

INJURY - A MAJOR PUBLIC HEALTH PROBLEM IN HAWAII

Injuries are responsible for more deaths of children and young adults in Hawaii from age one through age 40 years than all other causes combined, including heart disease, stroke and cancer. Among all ages, injury is the third leading cause of death, behind only heart disease and cancer, but ahead of cerebrovascular disease, influenza and pneumonia, and diabetes. Although the greatest impact of injury is in human suffering, the financial cost is staggering - medical treatment for injuries generates approximately \$424 million in hospital charges each year in Hawaii.

Mortality statistics do not convey the full extent of the injury problem, however. Fatal injuries represent less than 1% of all injuries requiring medical attention. Although fatal injuries are the most severe, the vast majority of injuries are non-fatal, and in some respects, have much greater public health implications. On an average week in Hawaii 13 residents die from an injury, another 112 are hospitalized and nearly 1,550 others are treated in emergency departments.

Injuries, however, are not accidents. They are neither random nor uncontrollable. Injuries are understandable, predictable and preventable. The first step in understanding and preventing injuries is to collect and analyze data. Answers to questions like “How serious is the problem?”, “Who has the problem?” and “What are the circumstances under which it occurs?” help determine the answers to questions such as “What causes it?” and “What can we do about it?”

Ten leading causes of death among Hawaii residents, by age group, 2009-2013

	<1	1-14y	15-24y	25-34y	35-44y	45-54y	55-64y	65+y	all ages
1	Perinatal conditions 302	Unintentional injuries 48	Unintentional injuries 207	Unintentional injuries 212	Unintentional injuries 268	Malignant neoplasm 877	Malignant neoplasm 2,177	Heart disease 9,202	Heart disease 11,545
2	Congenital anomalies 75	Malignant neoplasm 24	Suicide 143	Suicide 145	Malignant neoplasm 237	Heart disease 700	Heart disease 1,322	Malignant neoplasm 7,715	Malignant neoplasm 11,164
3	Sudden infant death synd. 22	Congenital anomalies 11	Malignant neoplasm 47	Malignant neoplasm 84	Heart disease 208	Unintentional injuries 345	Unintentional injuries 283	CVD 2,587	CVD 3,084
4	Unintentional injuries 19	Homicide 9	Heart disease 23	Heart disease 83	Suicide 150	Suicide 160	CVD 275	Influenza and pneumonia 1,521	Unintentional injuries 2,173
5	Other resp. diseases 8	Influenza and pneumonia 9	Injuries of unk. intent 16	Injuries of unk. intent 30	CVD 49	CVD 149	Diabetes mellitus 223	Chronic lower resp. diseases 1,276	Influenza and pneumonia 1,730
6	Septicemia 8	Suicide 7	Homicide 12	Homicide 19	Liver disease and cirrhosis 36	Liver disease and cirrhosis 121	Liver disease and cirrhosis 195	Alzheimer's disease 1,127	Chronic lower resp. diseases 1,480
7	Influenza and pneumonia 7	Heart disease 5	Congenital anomalies 7	CVD 15	Injuries of unk. intent 35	Diabetes mellitus 109	Suicide 156	Diabetes mellitus 996	Diabetes mellitus 1,374
8	Homicide 4	Other resp. diseases 4	CVD 6	Influenza and pneumonia 11	Diabetes mellitus 33	Injuries of unk. intent 73	Chronic lower resp. diseases 146	Nephritis, nephrotic synd. 870	Alzheimer's disease 1,136
9	Injuries of unk. intent 4	Perinatal conditions 3	Influenza and pneumonia 5	Diabetes mellitus 9	Homicide 25	Influenza and pneumonia 51	Influenza and pneumonia 110	Unintentional injuries 791	Nephritis, nephrotic synd. 1,025
10	Other acute resp. infections 4	Septicemia 3	Septicemia 3	Other circ. diseases 7	Other circ. diseases 22	Chronic low. resp. diseases 43	Nephritis, nephrotic synd. 93	Other resp. diseases 660	Suicide 879

Deaths grouped as recommended by National Center for Health Statistics (http://www.cdc.gov/nchs/data/nvsr/nvsr53/nvsr53_15.pdf).

Leading Causes of Injury Mortality and Morbidity among Hawaii residents¹, 2009-2013

	Death Certificates (fatal)			Hospital Admission Records (non-fatal)			Emergency Department Records (non-fatal)		
	Cause ²	# ³	%	Cause	# ⁴	%	Cause	# ⁵	%
1	Suicide	176	26%	Falls	2,751	52%	Falls	22,366	30%
2	Falls	111	16%	Car occupant	356	7%	Striking ⁶	12,344	17%
3	Poisoning	106	15%	Suicide attempt/ self-inflicted	352	7%	Cut/pierce	7,487	10%
4	Car occupant	52	8%	Assault	293	6%	Overexertion ⁷	6,794	9%
5	Drowning	34	5%	Motorcyclist	270	5%	Assault	3,830	5%
6	Motorcyclist	32	5%	Poisoning	218	4%	Car occupant	3,754	5%
7	Suffocation	28	4%	Striking ⁶	182	3%	Natural/ environmental ⁸	3,730	5%
8	Pedestrian	27	4%	Pedestrian	130	2%	Bicyclist	1,252	2%
9	Assault	23	3%	Bicyclist	105	2%	Motorcyclist	1,073	1%
10	Fire/burn	4	1%	Overexertion ⁷	79	1%	Fire/burn	990	1%
	<i>all other</i>	90	13%	<i>all other</i>	588	11%	<i>all other</i>	10,950	15%
	Annual total	684		Annual total	5,897		Annual total	79,606	

¹ Non-residents comprised 10% of the victims killed by injuries in the state, 10% of those hospitalized, and 9% of those treated in emergency departments.

² All injury causes are unintentional or "accidental" in intent, except for suicide and assault.

³ Annual number of deaths, from 2009-2013 death certificates. For underlying cause of death in the ICD-10 code series: V01-Y36, Y85-Y87, Y89, and U01-U03.

⁴ Annual number of injury-related hospitalizations, from 2009-2013 records. For principle diagnosis in ICD-9CM code series: 800-909.2, 909.4, 909.9, 910-994.9, 995.5-995.59, 995.80-995.85. Annual total does not include 8% of records that did not include external cause of injury codes.

⁵ Annual number of injury-related emergency department visits, from 2009-2013 records. For principle diagnosis in ICD-9CM code series: 800-909.2, 909.4, 909.9, 910-994.9, 995.5-995.59, 995.80-995.85. Annual total does not include 7% of records that did not include external cause of injury codes.

⁶ Most (91%) of these patients were "struck accidentally by objects or persons"; the rest (9%) were "struck accidentally by falling object". Of the former, the most commonly specified causes were "striking...in sports" (20%), and "striking against... furniture" (3%), or "running water" (2%).

⁷ Most (68%) of these injuries were related to "Overexertion...from sudden strenuous movements", and trauma from repetitive motion (22%).

⁸ Most (98%) of these visits were related to the bites or venom of animals, most specifically dog bites (38%), centipedes (11%), bee and wasp stings (10%), and venomous marine animals (6%).